

SHELTON STATE COMMUNITY COLLEGE

# **ROLE OF THE MENTOR**

---

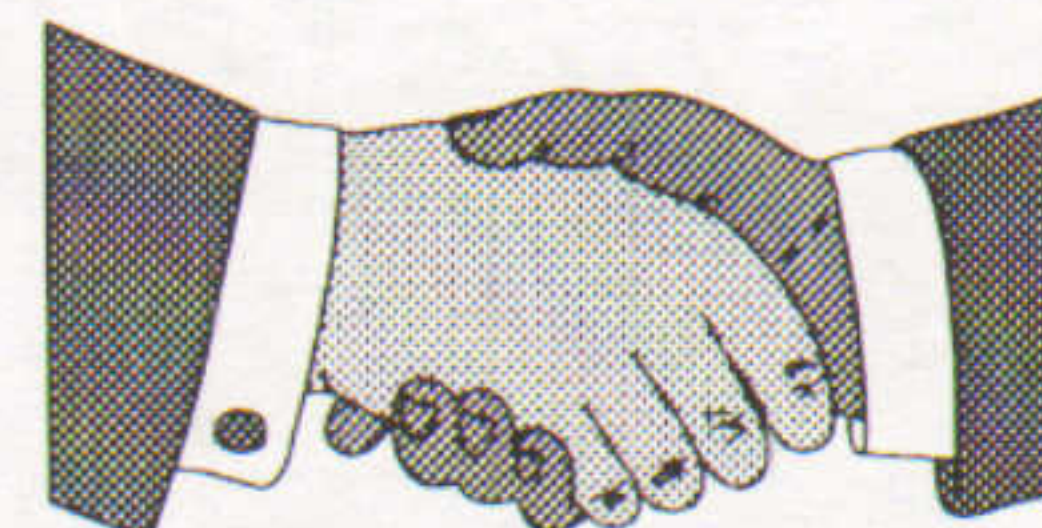
**BUILD THE RELATIONSHIP**

**KEEP COMMITMENTS**

**COMMUNICATE OFTEN**

**SHARE INFORMATION**

**GIVE AND RECEIVE FEEDBACK**



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

# **ROLE OF THE MENTOR**

---

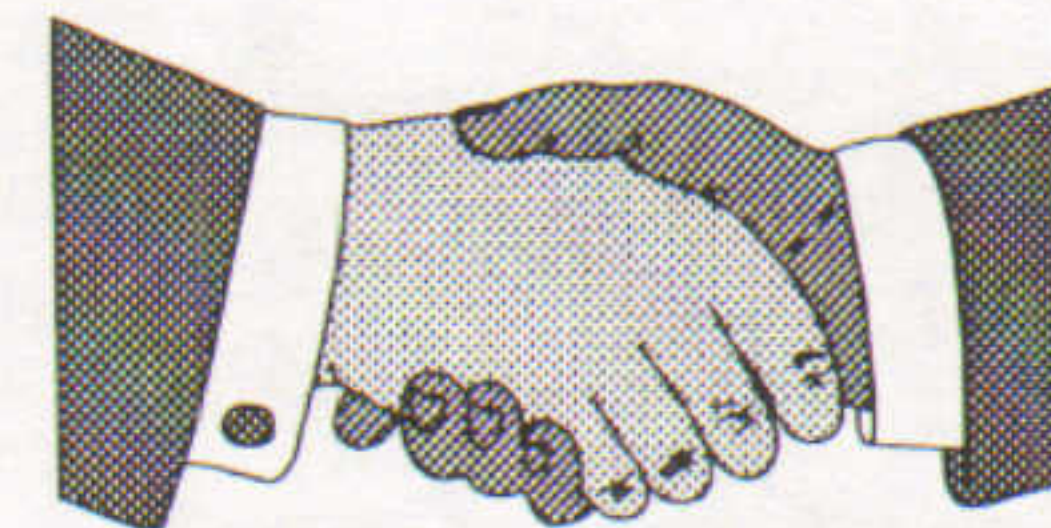
**SET REALISTIC EXPECTATIONS**

**BE AVAILABLE**

**MAINTAIN CONSISTENT CONTACT**

**LISTEN WITH EMPATHY**

**GIVE ENCOURAGEMENT**



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

# **PRACTICE THESE BEHAVIORS**

**LISTENING**

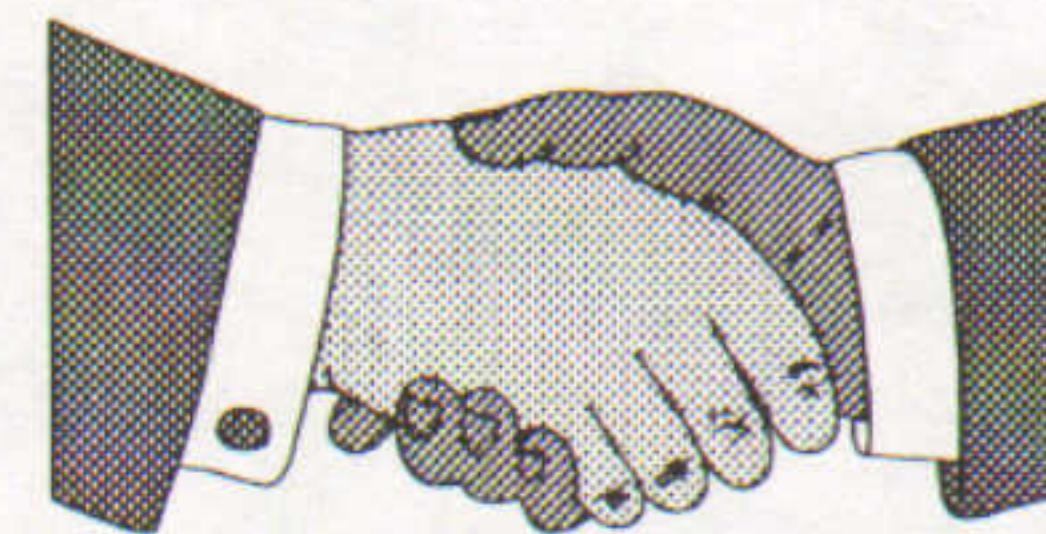
**GIVING FEEDBACK**

**GIVING INFORMATION AND IDEAS**

**CHALLENGING IDEAS (ASK "WHY")**

**COMMUNICATING PERMISSION AND ENCOURAGEMENT**

**EXPLORING OPTIONS**



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

## DON'T PRACTICE THESE BEHAVIORS

GIVING ADVICE

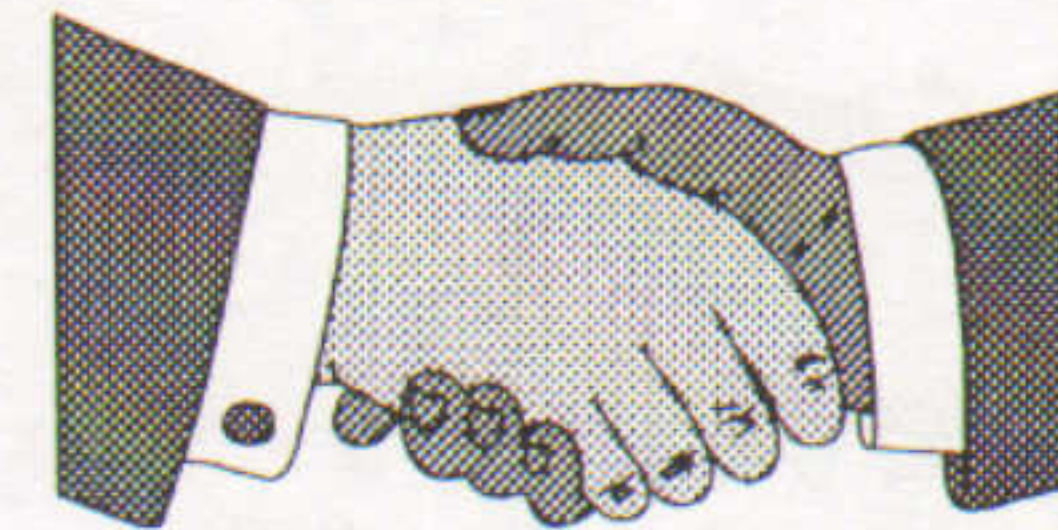
CRITICIZING

RESCUING

SPONSORING

BUILDING BARRIERS

DISCOUNTING OR IGNORING THE "WHY"



**TEAMS**



# ROLE OF THE MENTEE

RECOGNIZE THAT PARTNERS INVEST IN VARYING AMOUNTS

APPRECIATE THE MENTOR WITHOUT HOLDING IN AWE

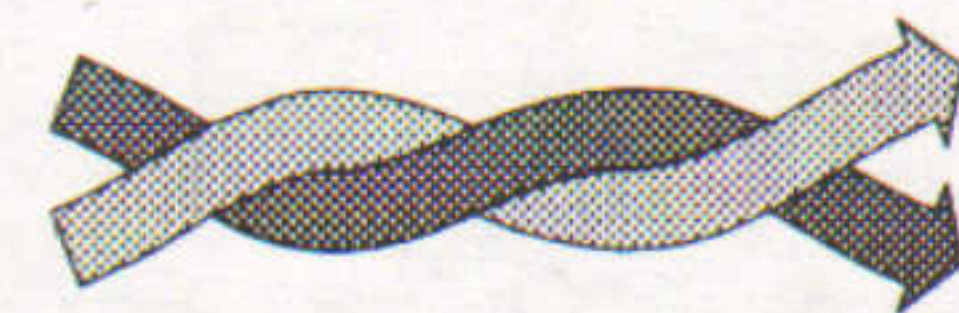
WELCOME MENTOR'S INTERESTS AND CONCERNS

LEARN AND PRACTICE SELF-EMPOWERING BEHAVIORS

BE OPEN TO FEEDBACK

SET REALISTIC EXPECTATIONS OF THE MENTOR

COMMUNICATE PROBLEMS CLEARLY



**TEAMS**



# ROLE OF THE MENTEE

INITIATE REASONABLE BUT FREQUENT CONTACT WITH  
THE MENTOR

FOLLOW THROUGH ON COMMITMENTS

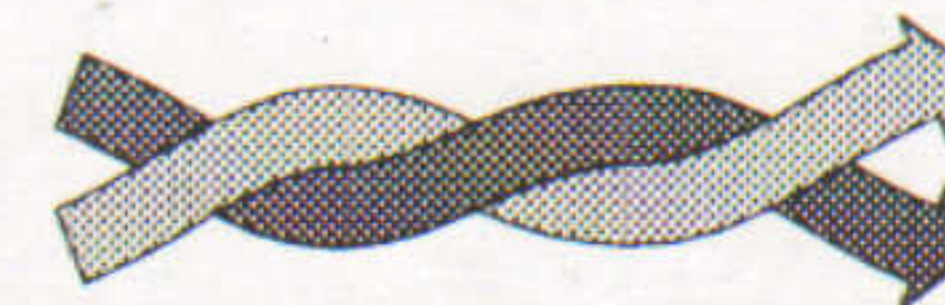
SEEK HELP WHEN NECESSARY

LEVEL WITH MENTOR WHEN YOU HAVE STRONG FEELINGS

BE WILLING TO DISCUSS FAILURES

WORK AT BUILDING A SOLID RELATIONSHIP

RECOGNIZE IMPORTANCE OF MUTUAL RESPECT,  
TRUST, AND OPENNESS

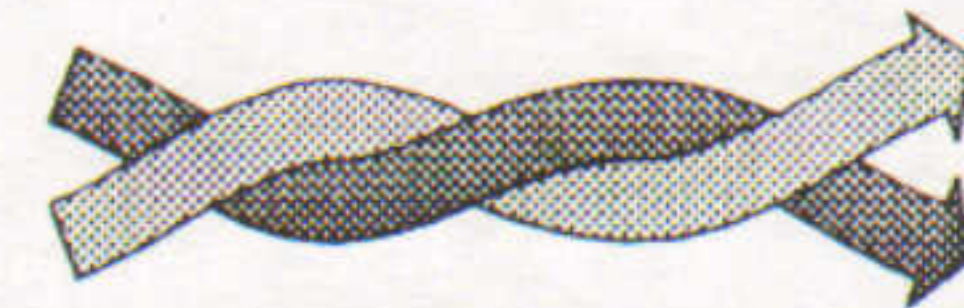


**TEAMS**



# **THE CHARTER**

1. Core process to be improved.
2. Process improvement objective (scope).
3. Start of process.
4. End of process.
5. Process Improvement Team Members.
6. Team Sponsor (optional).
7. Anticipated timeline.
8. Expected results.



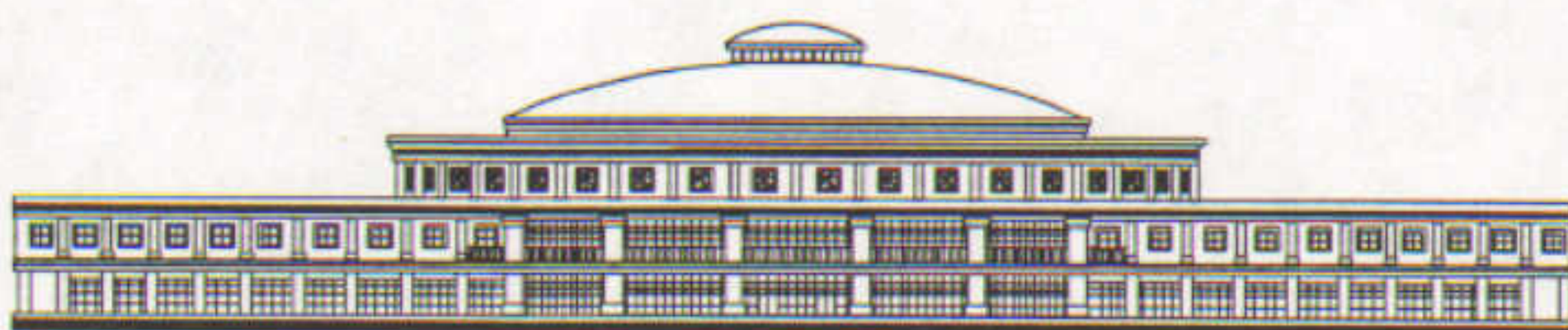
**TEAMS**



*Systems Improvement Team #1*  
**EDUCATIONAL PROGRAMS AND SERVICES**

Process Improvement  
**TEAM CHARTER**

1. Core Process: Class Scheduling
2. Improvement Objective: Improve class scheduling by reducing the number of classes that are cancelled before and during the drop/add period.
3. Start of process: Instructional deans provide division chairs with a schedule of classes that made during a given term (e. summer, fall, or spring) from the previous year.
4. End of Process: Class schedule is finalized after the drop/add period.
5. PI Team Members: Mike Cron  
Debra Donner  
Bet Hubbert  
Diane Layton  
William Quimby  
Ed Winslow
6. Sponsor: Diane Layton
7. Anticipated Timeline: Start-July  
End-Oct
8. Expected Results: Reduce the number of cancelled classes before and during the drop/add period.



**SHELTON STATE COMMUNITY COLLEGE**

---

*Signature*  
**SI TEAM LEADER**



## **STEPS TO CHARTERING A PROCESS IMPROVEMENT (PI) TEAM**

**Identify Advance Team -  
Facilitator(s) and Process Owner(s).**

**Interview other key persons involved in the process.**

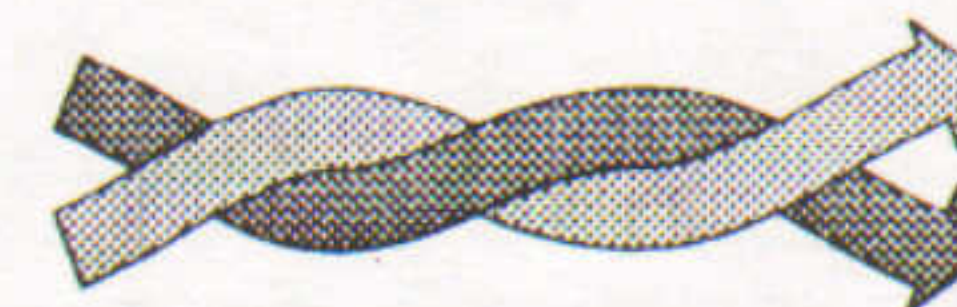
**Define preliminary boundaries/constraints.**

**Diagram (map or flowchart) the existing (or proposed) process.**

**SI Team prepares and presents charter to Quality Council.**

**Quality Council reviews charter against set criteria.**

**PI Team is formed and receives start-up training.**



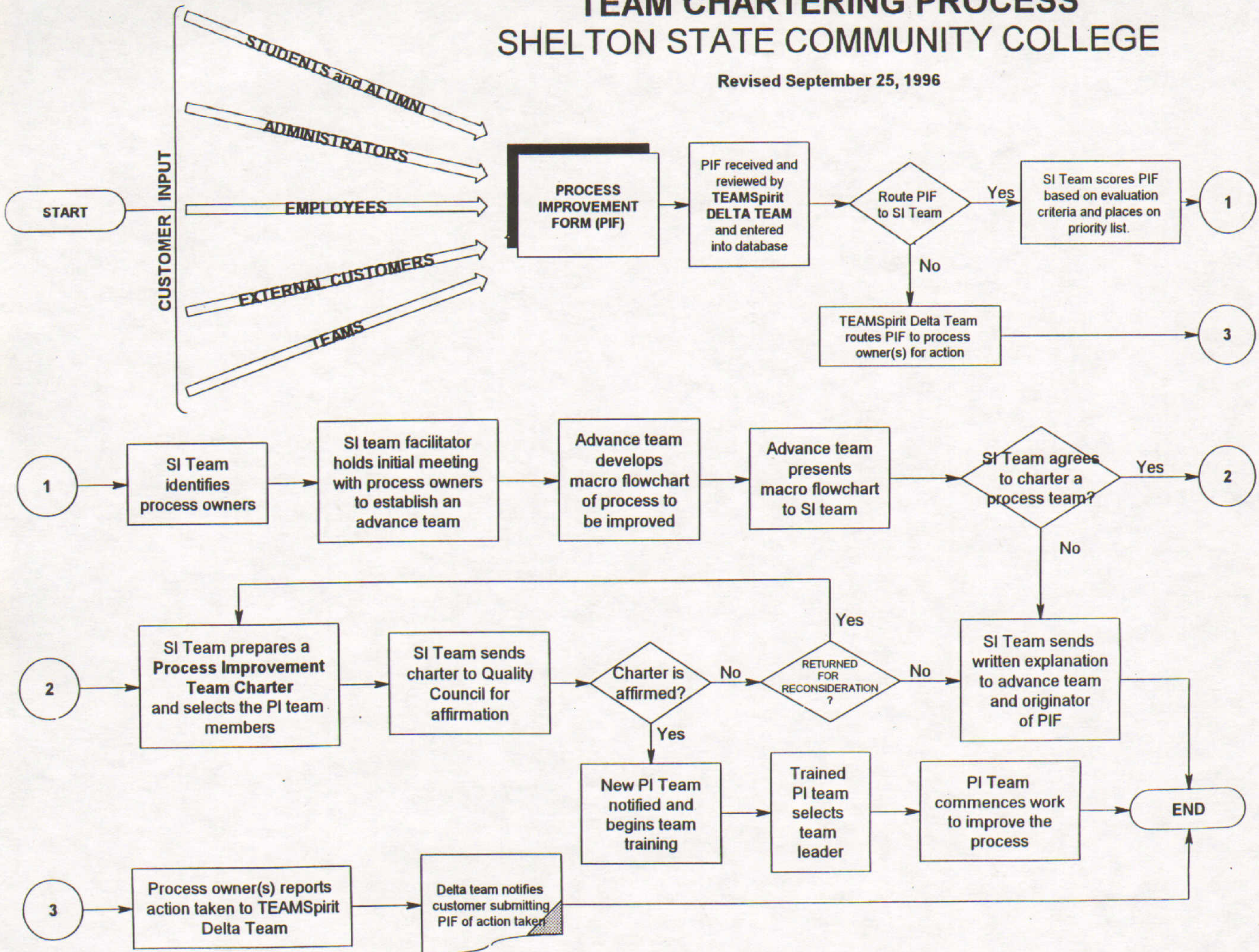
**TEAMS**



# TEAM CHARTERING PROCESS

## SHELTON STATE COMMUNITY COLLEGE

Revised September 25, 1996





# The Gentle Art of Chartering a Team

How to  
establish  
teams and  
negotiate  
team objec-  
tives using the  
chartering  
process

by  
James M. Cupello

**U**SING THE PARETO PRINCIPLE, IT COULD be said that the chartering process is the vital 20% that will lead to successful teams 80% of the time. Although there are many issues teams must address, they will be able to deal with those issues as long as the vital few chartering steps are handled honestly and thoughtfully.

By reflecting on the source of authority used to create teams, one might rightly conclude that such power resides only with those hired to orchestrate a business: the executives, managers, or supervisors. Usually, executives empower themselves to create quality councils; executives or managers create teams; and supervisors facilitate their own natural work groups, with upper-level support or insistence (see the sidebar "The Different Types of Teams"). What follows is a look at how these leaders should charter a team.

It is assumed here that the team to be chartered is under the direction of a quality council. If an organization does not have a quality council, the chartering process must be modified slightly. In essence, the process owner should be regarded as a one-person quality council and all appropriate actions should be coordinated with that individual.

The chartering process consists of six steps: obtaining a problem statement, identifying the principal stakeholders, creating a macro flowchart of the process, selecting the team members, training the team, and selecting the team leader.

## Obtaining a problem statement

The first hint that a new group is about to form comes when senior management begins to openly express concern over a product, service, or process—a concern that is frequently stimulated by customer complaints. When the level of concern reaches a flash point, the quality council will generally direct a senior total quality

management (TQM) staff executive to create a team to address the problem. In the absence of a TQM mind-set, executives might typically direct a lower-level manager to form a group to fix the problem.

Only the quality council members should have the authority to charter cross-functional teams because one of the key roles of senior management is to prioritize what gets done. There is not enough time or money to solve every problem facing an organization. Only the quality council has the mandate, perspective, and resource base to create and charter cross-functional teams. Even then, it has only the time and energy to evaluate and interact with a relatively small number of such teams. The council, to be effective, needs to be in tune with the major concerns of external and internal customers. A quality council that delegates this responsibility quickly observes that far too many teams are working on the trivial many problems rather than on the vital few.

To simplify the discussion, assume that the

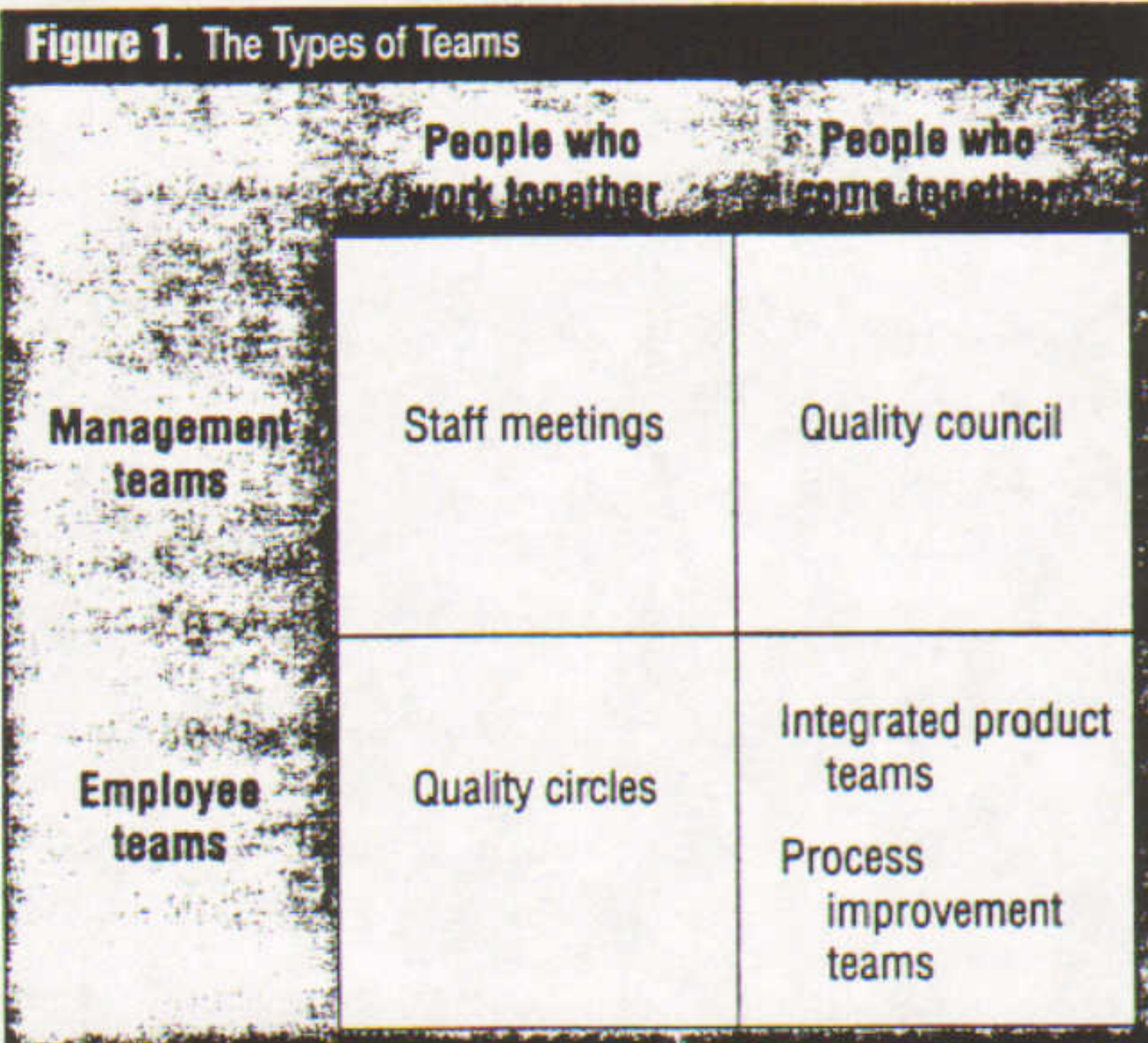




## The Different Types of Teams

Teams are usually created for one of two reasons. In the ideal case, teams are formed to solve problems and improve processes. But the more likely situation in U.S. organizations is that teams are created by management decree to confront issues that have become too painful, costly, or embarrassing to ignore. In either case, the desired outcome is to improve the status quo.

It is enlightening to compare and contrast the various types of teams that ultimately might be chartered. The Air Force Materiel Command defines two kinds of teams: management teams and employee teams.<sup>1</sup> Xerox Corporation's U.S. Marketing Group prefers to identify teams as either people who work together or people who come together.<sup>2</sup> Figure 1 shows the results of the intersection of these two unique definitions of teams.



The upper left quadrant of Figure 1 represents the traditional staff meeting arrangement used by corporate executives to conduct daily business. These executive groups are not facilitated, trained, or formally chartered. They are frequently dysfunctional because they fail to develop into a team; in fact, they seldom even try. They represent a group of individuals who often promote their own functional or personal agendas.

The upper right quadrant represents a quorum of executives chartered to function as a quality council. In his book *Managing the Total Quality Transformation*, Thomas Berry does a good job of explaining the role of this executive team: It

TQM staff member empowered to charter the team becomes the team facilitator. The facilitator's first task is to ask the quality council to formalize the problem statement by putting it in writing. An alternative is for the facilitator to prepare a problem statement and submit it to the quality council for verification. A written problem statement forces the council to be specific and thoughtful in its charge and helps the facilitator identify the major stakeholders. It also protects the team and facilitator from abuse, should executive memory falter or fail.

There is one more important reason for a written problem

essentially represents the high-level, or strategic, quality planning function of the organization.<sup>3</sup> Ideally, this team should be chartered by the board of directors.

The lower right quadrant consists of integrated product teams (IPTs) and process improvement teams (PITs), both of which are cross-functional. In other words, they are forced to deal with major issues, some of which cross organizational boundaries that typically separate functions such as research and development, marketing, sales, production, quality control, and customer service. The major difference between the two is that IPTs focus on technical aspects of a product or service while PITs focus on processes. They share one feature: Both represent groups that are dynamically complex. The complexity arises in large part from the "white space on the organization chart" that these teams must traverse.<sup>4</sup> Because of this complexity, a good percentage of IPTs and PITs fail to deliver what management hopes for or expects.

The lower left quadrant consists of natural work groups or quality circles. They, too, have a poor track record in American industry.<sup>5</sup>

It is important to remember that when first created, a team is not truly a team. Rather, it is a group of individuals brought together by fiat. In their book *The Wisdom of Teams*, Jon Katzenbach and Douglas Smith effectively explain the difference between groups and teams when they note that: "Groups become teams through disciplined action. They shape a common purpose, agree on performance goals, define a common working approach, develop high levels of complementary skills, and hold themselves mutually accountable for results."<sup>6</sup>

### References

1. Larry Boggio, Laura A. Dionne, Bryan T. Frassmann, Bill Jennings, Judy Kolenda, and Robert Ybarra, "Quality Leadership for Managers," San Antonio Air Logistics Center, Air Force Materiel Command, San Antonio, TX, p. 7-3.
2. A. Barry Rand, "USMG Partnership: The Way We Work," USMG Quality Office, Xerox Corporation, Rochester, NY, 1988, p. 14.
3. Thomas H. Berry, *Managing the Total Quality Transformation* (New York, NY: McGraw-Hill, Inc., 1991).
4. This phrase is coined by Geary A. Rummler and Alan P. Brache in *Improving Performance: How to Manage the White Space on the Organization Chart* (San Francisco, CA: Jossey-Bass Publishers, 1991).
5. Michael L. Dertouzos, Richard K. Lester, and Robert M. Solow, *Made In America* (New York, NY: Harper Perennial, 1989), p. 124.
6. Jon R. Katzenbach and Douglas K. Smith, *The Wisdom of Teams: Creating the High-Performance Organization* (Boston, MA: Harvard Business School Press, 1993), p. 15.

statement. Executives tend to identify large system problems, such as "fix the accounting system" (which is akin to "eliminate world hunger"), in the original problem statement. System problems are generally too complex to tackle whole. They must be broken into their component parts (i.e., processes) and examined one by one.

The team and facilitator must manage the quality council's expectations very carefully. But now is not the time to tell the council that there is a better way—that is, a more specific definition of the problem. In a subsequent step of the chartering



process, the facilitator and a select few individuals can redefine the problem statement with the help of data and flowcharts and present the findings and their implications to the council. Then a proposed change to the problem statement might be in order, but not until then.

### **Identifying the principal stakeholders**

With the problem statement in hand, it should be easy to identify the process owner (the one who oversees the entire process in question) in the organizational hierarchy. The facilitator should then identify the process owner's boss, this boss's boss, and so on until he or she reaches the executive who sits on the quality council. Generally, this "family tree" includes only a couple of people between the process owner and the quality council.

As soon as possible, the facilitator should arrange a short, informal meeting with all of these individuals, including the executive who sits on the quality council (but no other council members). The facilitator should:

- Chair the meeting
- Share and discuss the written problem statement authorized by the council
- Explain the role that the facilitator will play during the life of the team
- Enumerate the next few steps in the chartering process

### **Telling a team to "fix the accounting system" is akin to telling it to "eliminate world hunger."**

This informal meeting is one of courtesy, political astuteness, and, quite possibly, survival. The facilitator and process owner are letting the middle managers know that a group is about to begin "playing in their sandbox," with the permission and direction of the senior executives. Since the quality council should have already told these managers that it has authorized a process review, this meeting simply confirms what the middle managers already know and reinforces this knowledge with some useful and needed clarification.

This meeting also represents an informal invitation for the middle managers to challenge the quality council if they take exception to what is about to transpire. It is important to allow the managers time (about a week) to attempt to reverse the council's decision. If concrete information suggests that tampering or sabotage is occurring, however, the facilitator or process owner should immediately bring it to the attention of the process owner's representative on the council. That council member, not the facilitator or process owner, should resolve the dilemma. If the coast looks clear after a week, the facilitator and process owner can proceed with caution.

### **Creating a macro flowchart of the process**

The next step is for the facilitator and process owner to meet privately for about an hour. The facilitator should provide a detailed agenda for the meeting so that the process owner knows what will be discussed and can provide needed information or invite others to attend. From this point on, the duo of the

process owner and facilitator will be referred to as the advance team. Membership on this advance team will grow slightly during the chartering process, but it will disappear when the entire team officially forms.

The desired outcome of the advance team meeting is the development of a macro flowchart that outlines the 10 to 20 major process steps associated with the product, service, or process identified in the problem statement. For each macro process step, it will eventually be necessary to provide statistical data relating to the problem. For example, if there is a quality problem, the advance team will need to know the number of defective items produced at each major step. If it is trying to reduce cycle time, it will need to know the elapsed time for each process step. These types of data should not be required at the first meeting, unless they are readily available.

As the macro flowchart is developed, the advance team should strive to provide brief, highly descriptive labels for each macro step—labels that the quality council can easily understand when briefed using this flowchart.

The advance team might need analytical support to create the macro flowchart. For example, it might be unable to quantify the cost, quality, schedule, and other parameters for each macro process step. If this occurs, the process owner (or someone higher in the process chain) must identify the person who has access to and understands the performance data for the process in question. This person must be made readily accessible to the advance team on an as-needed basis. The advance team could end up requiring 50% to 100% of this individual's time for the month or two required to complete the entire chartering process. A figure of 10% to 25%, however, is more typical.

At this time, the advance team must also determine whether the chartered team (when composed) will require the services of a part-time or full-time data analyst. Some problems might be so complex that the assistance of a statistician or mathematician is needed. Other problems might be less complex but involve such large data bases that the assistance of a computer programmer or system programmer is needed. It is conceivable that some teams will only require the assistance of a facilitator who is proficient in statistical process control and the seven simple statistical tools. The possibilities are not endless, but they are challenging. Ideally, the individuals assigned to generate the data for the advance team's macro flowchart will serve on the chartered team. Whatever happens, the team's mission should not be compromised by failing to include a mechanism for obtaining analytical support.

During this stage, there is an almost overwhelming temptation for the advance team to try to solve the problem single-handedly—an impulse that even experienced facilitators find hard to resist. But that impulse must be avoided. The advance team is merely attempting to identify the process that will be proposed to the quality council for improvement. The advance team must focus on the process, not the problem.

A common obstacle to teams' success is that they often tackle problems that are too large. It is the facilitator's responsibility to make sure that the team can fulfill its charter in nine to 12 months. When in doubt, the facilitator should always err on the side of too little rather than too much. The effort required to address even a relatively small problem mushrooms as the team delves into its resolution. Even successful teams often lament that they should have chosen a more tractable problem—a subset of what they undertook.



Once the advance team has compiled an accurate macro flowchart containing appropriate performance data, it is generally time to visit the quality council. The macro flowchart is an excellent tool for briefing the council members on what has been learned about the process and for convincing them, if necessary, that the original scope of the project should be reduced. In such a case, the quality council should be presented with a revised problem statement for approval. At this same meeting, the council members should also be informed about the next steps to be taken in the chartering process.

### Selecting the team members

The task of selecting team members is difficult and risky because the facilitator has to rely almost solely on the judgment of the process owner, who might be unfamiliar with such issues as people's behavioral styles, interpersonal skills, communication styles, and personality profiles. Some process owners are so removed from the daily activities of their processes that they might not know, in detail, who does what. In such a case, it is important to involve appropriate managers and supervisors in the selection process.

The team member selection process involves using another type of flowcharting, one that the Juran Institute calls the matrix flow diagram.<sup>1</sup> This diagram shows both the chronological flow of a process (from top to bottom in the chart) and the flow between departments (from left to right in the chart). This diagram not only reveals the sequence of activities, but also which organizational units perform the work.

By relying on the matrix flow diagram, it becomes relatively easy to involve every major functional unit in the process targeted for improvement. It is important to select people from each unit who:

- Know the process intimately
- Are productive individual performers
- Will voluntarily accept an invitation to work on the team in addition to maintaining their normal workload (volunteers are preferable to draftees)

The team should be kept small; it should have no more than 10 people. From a practical standpoint, team membership is usually limited to no more than one person per unit listed in the matrix flow diagram. Because each unit has only one person on the team, that person has to be knowledgeable, willing to share information, and free to attend all team meetings.

It is advisable to meet informally with the quality council to discuss the list of proposed team members to see if there is opposition to anyone on the list. The list, however, should not be altered without good reason.

After the team members have been selected, it is important to formally notify them of their appointment, preferably by a letter signed by a high-level executive. This short letter should briefly explain the team's mission, identify all team members, and announce the time and location of the first team meeting.

The first team meeting should last no more than 90 minutes and should be chaired by the process owner. If possible, a member of the quality council should start the proceedings because executive participation sends a powerful message that the team's charge is both important and highly visible. The facilitator should be present and actively participate in key portions of the meeting.

The team mission statement should be discussed. Team members will be anxious to understand why the team was creat-

ed and the role they will play on it. Team members should also understand that they will participate in refining the team's mission statement and in presenting that revised statement to the quality council for affirmation.

The facilitator should introduce and explain the macro process flowchart and performance data to the team and explain how the data influenced the council to charter the team. Team members should be asked when they would be available for training. Those who cannot or will not attend training must be replaced immediately.

**There is an almost overwhelming temptation for the advance team to try to solve the problem single-handedly—an impulse that even experienced facilitators find hard to resist. But that impulse must be avoided.**

### Training the team

If the team's training is not comprehensive and effective, all of the effort invested in the chartering process thus far, even if done well, will be wasted. Up to this point, the focus has been on properly defining the improvement opportunity (using data, not opinion) and making sure the appropriate individuals are on the team. Now that a team has been selected and given a preliminary mandate, substantial, sustainable improvement is predicated on developing three team skills that are not widely found in most organizations: communication, trust, and cooperation.

The facilitator will probably be asked to find an outside training source, assuming that internal training resources aren't available. Commercial courses are usually expensive, and the quality varies widely. The facilitator should not inflict any training on a team unless he or she can personally vouch for the course's content and quality.

The facilitator should consider auditing commercial courses. Most training firms allow this since it is a marginal cost for them to allow potential customers to sit in the back of the room. A firm has the right to refuse an audit; in such a case, the facilitator should conduct a thorough investigation before spending money on the course.

The length of commercial team training courses varies from four hours to four days, with two to three days being the norm. A full three days is a minimum, with four days being recommended. An ideal course will consist of two components: team dynamics and team statistical tools.

Team dynamics can cover a lot of territory, such as team skills, meeting skills, and negotiating skills.<sup>2</sup> At minimum, the training should cover:

- Basic interactive skills that will be frequently used, such as brainstorming, nominal group technique, and various types of agreement techniques (e.g., majority vote, majority rule, and consensus)
- How teams evolve through phases and how those phases will look and feel
- Basic human personality and interaction styles and the resulting functional and dysfunctional roles that team members frequently adopt



- Key team start-up activities, including how to develop a team mission and vision statement, identify the team's stakeholders, and construct a code of conduct

No team should finish the team dynamics phase of its training without clearly understanding its mission, observing a written code of conduct, and realizing that this code is subject to constant refinement as the team learns and grows.

The statistical tools component of the training is just as valuable as the team dynamics component. Initial tool training is best limited to the seven simple tools of quality. There are inexpensive booklets that introduce and explain these tools, but the team training should go beyond what is provided in such pamphlets.

Some people believe that training in tool usage should be taught after a team has begun working on a problem. In reality, however, most teams are required to look at the performance of the targeted process immediately after they are formed and chartered.<sup>3</sup> Hence, statistical tools are needed quite early in the team's lifetime.

### Selecting the team leader

Who should be entrusted as the team leader? There are many possible answers. Sometimes, team members elect a fellow member to be the leader. Other times, the process owner becomes the leader. Some process owners, however, delegate the team leadership role to a trusted subordinate and then never formally participate in the team again.

It is highly recommended that the process owner remain active on the team, either as the team leader or as a team member. Deciding the process owner's role should not be left solely to his or her discretion. During the weeks or months of advance work with the process owner, the facilitator should gain a good understanding of that person's process knowledge, familiarity of and compatibility with team members, personality, and communication skills. The facilitator should use this information to help the process owner and quality council make the correct decision. If the process owner's primary motivation for wanting to serve as team leader is to maintain a position of power and authority, then any and all influence must be used to prevent such a mistake from occurring. The bottom line is to make sure that the process owner is an active, constructive team participant.

### The vital few

For a team to be successful, these vital few requirements must be met:

- A proficient facilitator is needed throughout the chartering process and the life of the team.
- The wants, needs, and concerns of the major stakeholders must be openly addressed and met.
- A macro flowchart of the process targeted for improvement must be created and understood by all in order to identify appropriate team members and to quantify where the major problems exist.
- An appropriate degree of analytical support must be provided to the team during its lifetime.
- Management's perception of the problem must be confirmed, rejected, or modified using data, not opinion.
- The team must be given an initial dose of high-quality team startup training prior to developing its charter for management review.

- An appropriate team leader with all of the requisite skills must be identified and assigned to the team.

Everything discussed up to this point is designed, ultimately, to position and empower a team to create a comprehensive, viable charter in concert with senior management. This charter, which is co-authored by the team and the quality council, represents a covenant between management and the team. It identifies team objectives and clarifies what the team expects from the organization during its tenure. The document itself is relatively easy to draft if the necessary steps have been responsibly taken.

It has been written that 70% of all quality programs fail<sup>4</sup> and that between 50% and 75% of TQM initiatives cease within the first two years.<sup>5</sup> The failure rate of teams is likely higher, and these team failures probably contribute significantly to the high rate of TQM failures. One can view the overall failure rate of teams as proportional to the product of the probability of failure of the individual steps in the chartering process. For example, suppose that the chartering process involves 10 steps and nine of those steps are meticulously executed so that each has a 100% probability of success. One step, however, is allowed to degrade to a 50% probability of success. The probability of overall team success is then compromised to the 50% level. This means that each step in the chartering process deserves considerable attention. If any of these important steps are neglected, it will be at the team's peril.

### References

1. Paul E. Plsek and Arturo Onnias, "Flow Diagrams," *Juran Institute Quality Improvement Tools* (Wilton, CT: The Juran Institute, Inc., 1989), pp. 10-11.
2. Daniel R. Tobin, *Re-Educating the Corporation* (Essex Junction, VT: Omneo, Oliver Wright Publications, Inc., 1993), pp. 65-67.
3. James M. Cupello, "The Armstrong Laboratory 14 Step Method for Continuous Process Improvement," Air Force Materiel Command, Humans Systems Center, Armstrong Laboratory (AL/TQ), Brooks AFB, TX, 1992.
4. Michael Desposito, *One-Page Promotional Letter* (Burr Ridge, IL: Irwin Professional Publishing, Times Mirror Books, 1994).
5. Mark Graham Brown, Darcy E. Hitchcock, and Marsha L. Willard, *Why TQM Fails and What To Do About It* (Burr Ridge, IL: Irwin Professional Publishing, Times Mirror Books, 1994).

The opinions, interpretations, conclusions, and recommendations in this article are those of the author and not the U.S. Air Force.

**James M. Cupello** is the director of the quality improvement office, Armstrong Laboratory, Human Systems Center, at the Brooks Air Force Base in Texas. Cupello received a doctorate in radiation biophysics from the University of Kansas in Lawrence. Cupello is a member of ASQC.

### What did you think about this article?

Quality Progress needs your feedback. On the postage-paid reader service card inserted toward the back of this magazine, please circle the number that corresponds with your opinion of the preceding article.

|           |             |
|-----------|-------------|
| Excellent | Circle #393 |
| Good      | Circle #394 |
| Fair      | Circle #395 |
| Poor      | Circle #396 |



# How to handle a PIF

Micro-flowchart #1

5/4/96

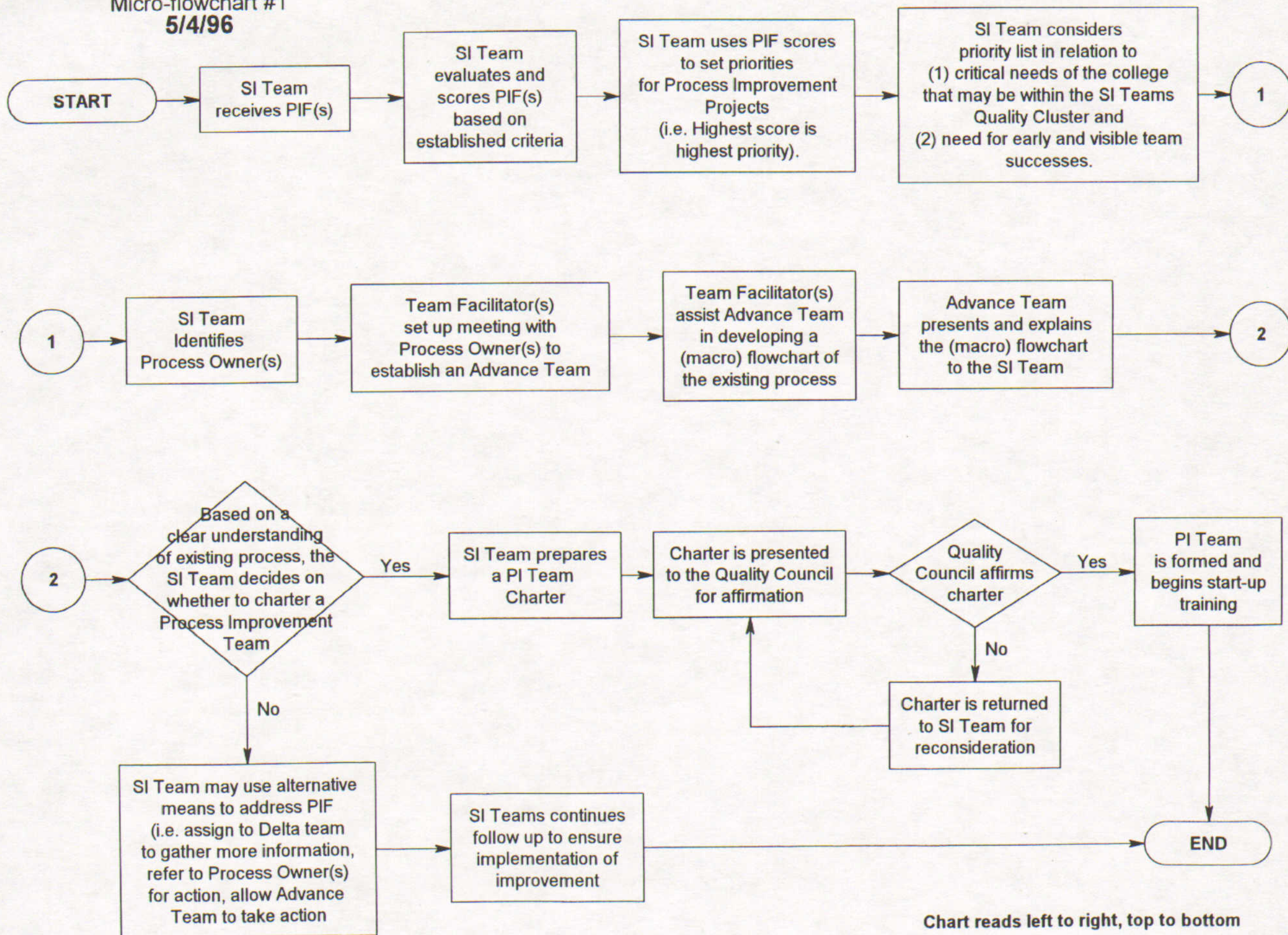


Chart reads left to right, top to bottom



SHELTON STATE COMMUNITY COLLEGE

## TOOLS FOR DECISION MAKING AND CRITICAL THINKING

*Fist to Five*

*10-4 Voting*

*Nominal Group Technique*

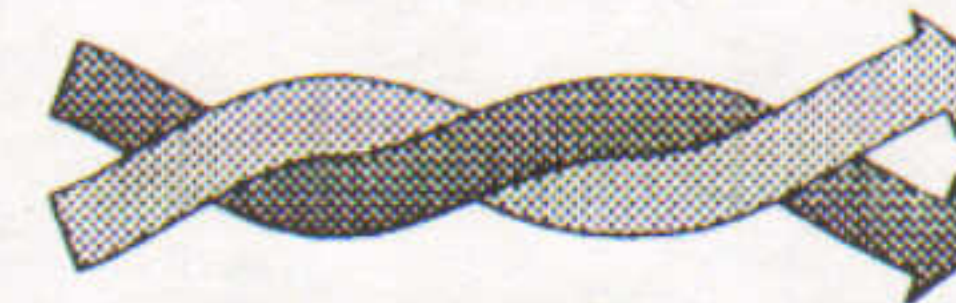
*Consensus 1-3-6*

*Cause and Effect Diagram*

*Interrelationship Digraph*

*Johari's Window*

*L-shaped Matrix*



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

## PROBLEM SOLVING TOOLS

*Affinity Chart*

*Cause/Effect Diagram*

*Flow Diagram*

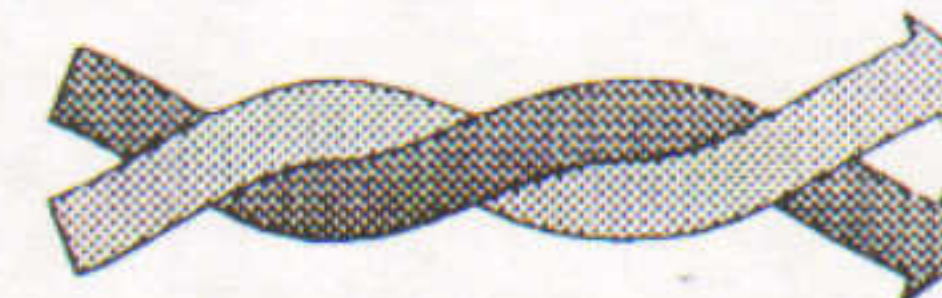
*Pareto Chart*

*Check Sheet*

*Flow Chart*

*Spider Diagram*

*Histogram*



**TEAMS**



## PROBLEM SOLVING TOOLS CONT'D

*Scatter Diagram*

*Control Chart*

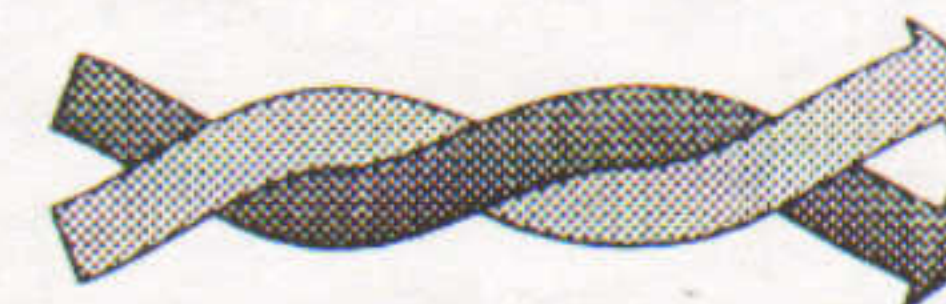
*Interrelationship Digraph*

*Tree Diagram*

*Matrix Diagram*

*Process Decision Program Chart*

*Activity Network Diagram*



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

## TOOLS FOR COLLECTING INPUT AND GENERATING IDEAS

*Minute Paper*

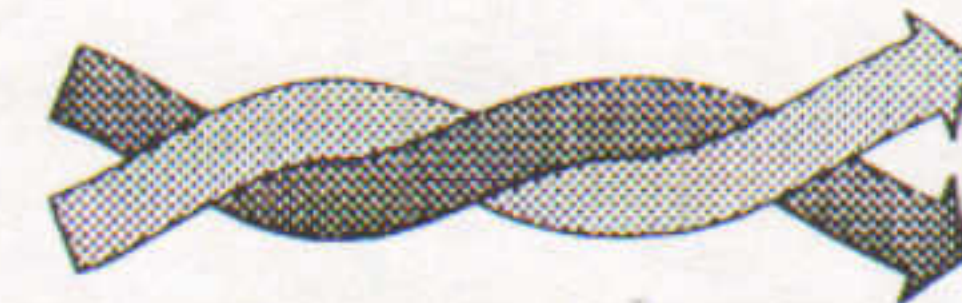
*Plus/Delta*

*Focus Group*

*Needs Survey*

*Affinity Diagram*

*Crawford Slip*



**TEAMS**



SHELTON STATE COMMUNITY COLLEGE

## TOOLS FOR DATA COLLECTION AND ANALYSIS

*Force Field Analysis*

*SWOT Analysis*

*Pareto Chart*

*Spider/Radar Diagram*

*Process Map or Flowchart*

*Run chart*

*Check Sheet*



**TEAMS**



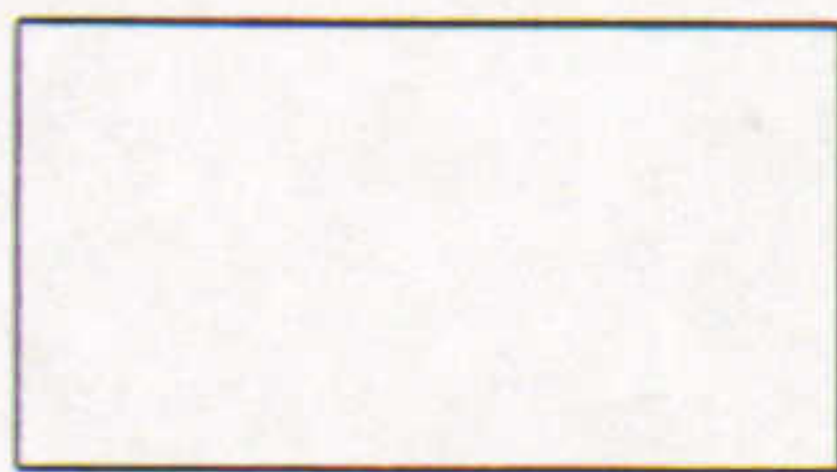
# MAPPING SYMBOLS



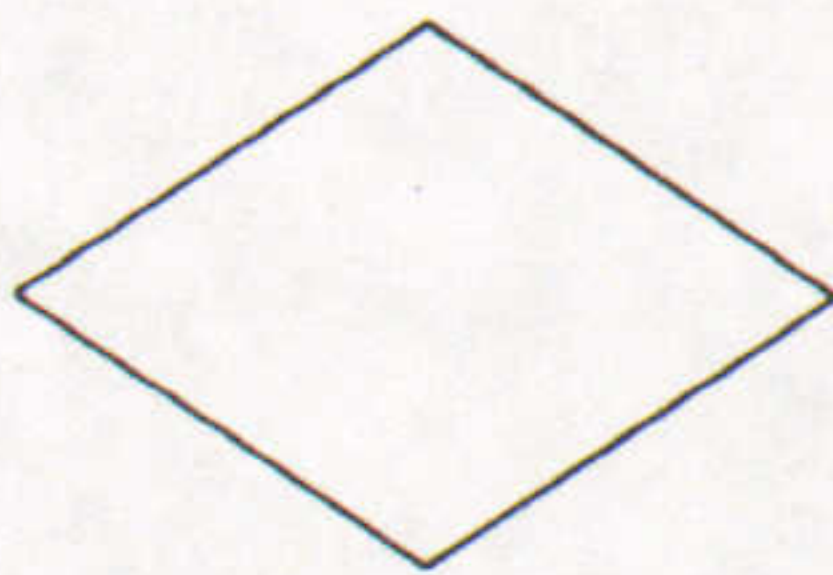
**INPUT OR OUTPUT**



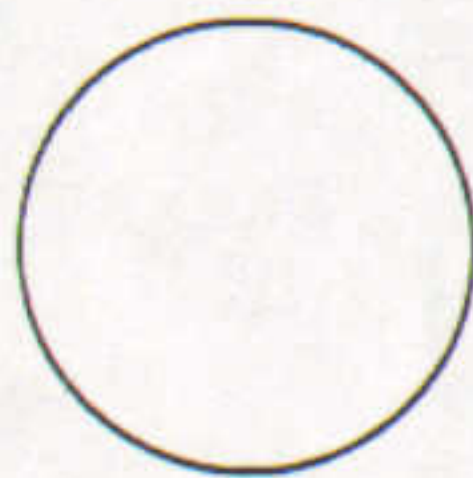
**PROCESS BOUNDARY  
(START/END or CONTINUATION))**



**PROCESS STEP, TASK, OR  
ACTIVITY**



**DECISION DIAMOND?**



**CONNECTOR**



**DIRECTION OF FLOW**